

REMARKS

Applicants have carefully considered the December 12, 2007 Office Action, and the amendments above together with the comments that follow are presented in a bona fide effort to address all issues raised in that Action and thereby place this case in condition for allowance. Claims 1-14 are pending in this application.

In response to the Office Action dated December 12, 2007, claims 1 and 2 have been amended. Adequate descriptive support for the present Amendment should be apparent throughout the originally filed disclosure as, for example, the depicted embodiments and related discussion thereof in the written description of the specification, including numbered paragraphs [0022], [0042], [0044], [0046] and Table 1 ([0039]). Applicants submit that the present Amendment does not generate any new matter issue. Entry of the present Amendment is respectfully solicited. It is believed that this response places this case in condition for allowance. Hence, prompt favorable reconsideration of this case is solicited.

Claims 1-14 were rejected under 35 U.S.C. § 103(a) as being obvious over Li et al. (U.S. Pat. No. 6,173,755, hereinafter “Li”) in view of Nanba et al. (U.S. Pat. No. 5,697,425, hereinafter “Nanba”). Applicants respectfully traverse the rejection.

Claims 1-14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Li in view of Nanba and further in view of Fiel et al. (U.S. Pat. No. 5,912,080, hereinafter “Fiel”). Applicants respectfully traverse the rejection.

Claim 1 has been amended to describe casting nozzle, including a casting nozzle tip with at least two layers.¹ The heat-conductive layer is arranged on the molten liquid side and is comprised of a material having a heat conductivity equal to or more than 16.7 W/mK. The heat-

¹ It is noted that in Figures 3(A)(B), the nozzle tip has three layers; and in Figure 3(C), the nozzle tip has four layers. In all three embodiments, there is an additional graphite layer which touches the movable mold.

conductive layer is depicted as reference numeral 32, 42 or 52 (C/C composite, Molybdenum or SUS316) in Figures 3(A)(B)(C) of the specification. The casting nozzle tip of claim 1 includes a second low-thermal-conductivity layer. As described in the specification, this second layer includes a ceramic fiber sheet and is depicted as reference numeral 31, 41 or 51 in Figures 3(A)(B)(C) of the specification. The effects of these layers are described in numbered paragraph [0022] as follows:

The nozzle of the present invention may have a structure in which the tip is formed in a multilayer including a plurality of layers consisting of different materials using the above-mentioned materials having superior thermal conductivity, materials having high strength and high elasticity, and materials of high density. For example, it may have a bilayer structure consisting of a carbon layer and a molybdenum layer. In this case, the carbon layer and the molybdenum layer both function as the superior thermal conductivity layer, the high strength layer, the highly elastic layer, and the high density layer. Besides, it may be equipped with a layer consisting of a material of low thermal conductivity, such as a ceramic fiber sheet, in addition to the layers consisting of the above-mentioned materials having various superior characteristics. For example, the nozzle may be provided with such a layer made of a material having low thermal conductivity at the internal circumference side thereof which touches molten alloy liquid. This makes it possible to obtain the effect of conducting heat uniformly in a cross-sectional width direction of the nozzle by providing the above-mentioned highly heat-conductive layer together with the above-mentioned low-thermal-conductivity layer.

Li describes a nozzle with three layers, with (a) refractory material 120 such as PYROTEK B-3, (b) resilient insulating layer 126 such as Q-BLOC, and (c) friction reducing layer 127 such as GRAFOIL. See Li at Fig 9; col. 6, lines 1-4; and col. 5, lines 13-20. The attached webpages (<http://www.pyrotek-inc.com/itemdisplay.asp?id=442&secid=187>) include the material data sheets for PYROTEK B-3, which has a heat conductivity of 0.19-0.26 W/mK. Thus, it is submitted that Li fails to disclose nozzle tip of at least two layers, including a heat-conductive layer made of a material having a heat conductivity equal to or more than 16.7 W/mK. As required in claim 1.

With respect to independent claim 2, the casing nozzle includes a casting nozzle tip arranged on the movable mold side and is deformable in order to make close contact with the movable mold. In Li, the resilient insulating layer 126 of Fig. 9 is deformable, however, there is no indication from the disclosure of Li that casting nozzle tip 120 is deformable. In the present claim 2, the tip is required to be deformable. Moreover, it is respectfully submitted that the prior art of record fails to disclose or remotely suggest a casting nozzle including a combination of a pair of rolls and the deformable nozzle tip, much less recognize the advantages obtained from the claimed combination, as described at numbered paragraph [0034] of the specification.

Moreover, the secondary and tertiary references to Nanba and Fiel do not cure the argued deficiencies of Li. The Examiner relied on Nanba for a use of a pair of rolls and Fiel for its teaching of isotropic graphite. Thus, even if the applied references are combined as suggested by the Examiner, the claimed subject matter will not result. *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 USPQ2d 1434 (Fed. Cir. 1988).

Accordingly, the rejections of claims 1-14 under 35 U.S.C. § 103(a) are not legally viable and should be withdrawn.

It is believed that all pending claims are now in condition for allowance. Applicants therefore respectfully request an early and favorable reconsideration and allowance of this application. If there are any outstanding issues which might be resolved by an interview or an Examiner's amendment, the Examiner is invited to call Applicants' representative at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper,

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including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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